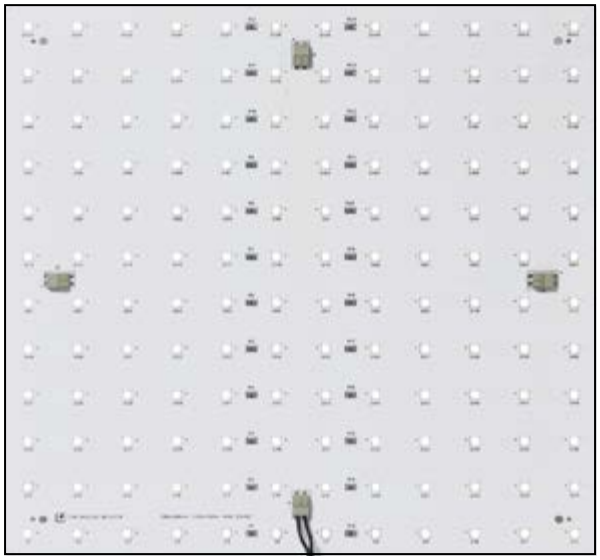
LED Module



Description:	
Size, Quantity of LEDs, Power, Brightness	~6 x 6 x 0.28-in, 36 LEDs, 11-watts, ~1,100 lm ~6 x 6 x 0.28-in, 49 LEDs, 15-watts, ~1520 lm ~12 x 12 x 0.28-in, 36 LEDs, 11-watts, ~1100 lm ~12 x 12 x 0.28-in, 144 LEDs, 44-watts, ~4,400 lm ~12 x 12 x 0.28-in, 196 LEDs, 65-watts, ~6,670 lm Power and luminance values are typical. We can provide other sizes and brightness levels to suit your requirments. Specifications can change without notice. Please specify power, color and luminance when ordering.
Voltage	12, 20 and 24-vdc are typical operating voltages. [Constant Voltage]
Dimming	Pulse Width LED dimmer
CRI: Ra	≥80 and [SunLike>95 (97 Typical)]
Color (Kelvin):	2,700K, 3,000K, 4,000K, 5,000K and others +/- 300
LED Luminescent Maintenance L_{70} [1]	~100,000+ hours to a 30% decrease in brightness
Construction:	Aluminum Printed circuit board
Weight (oz): 6x6-inches 12x12-inches	 ~ 4 ~ 15
Certification	NA
Origin	Manufactured in South Korea

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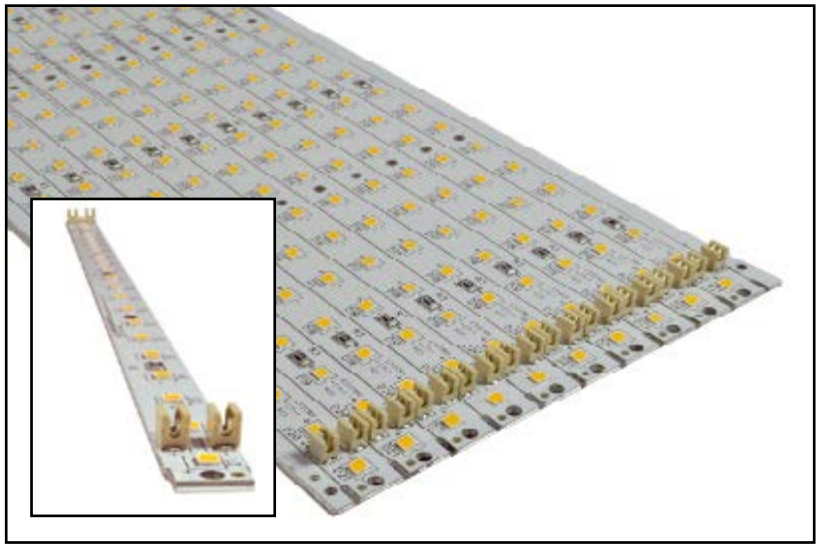
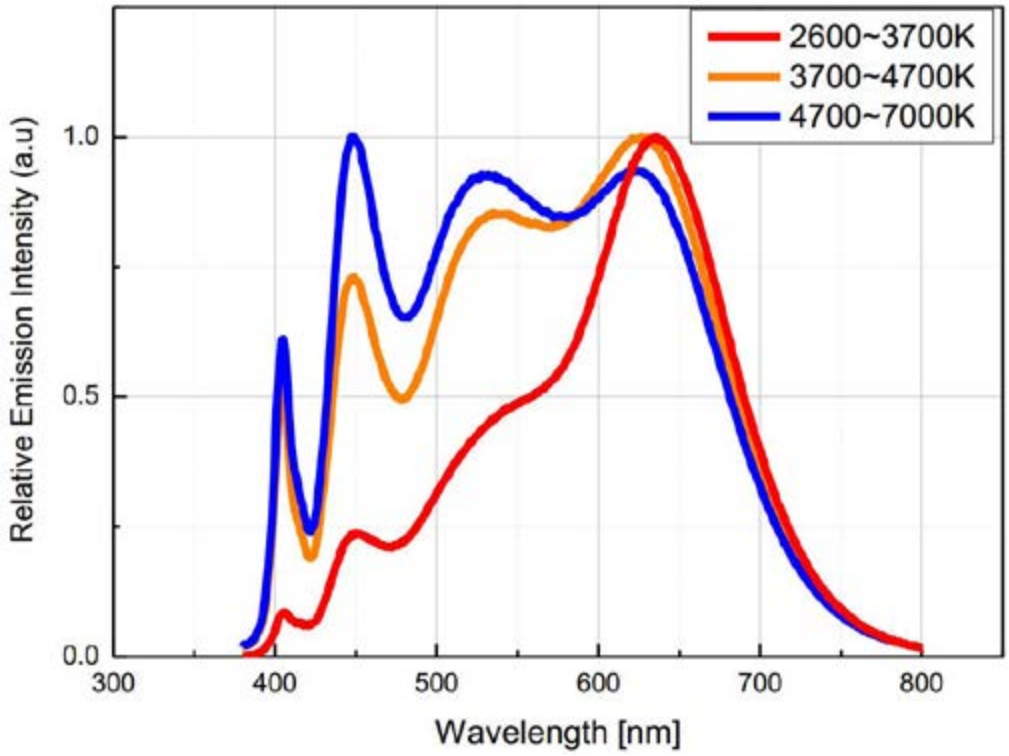
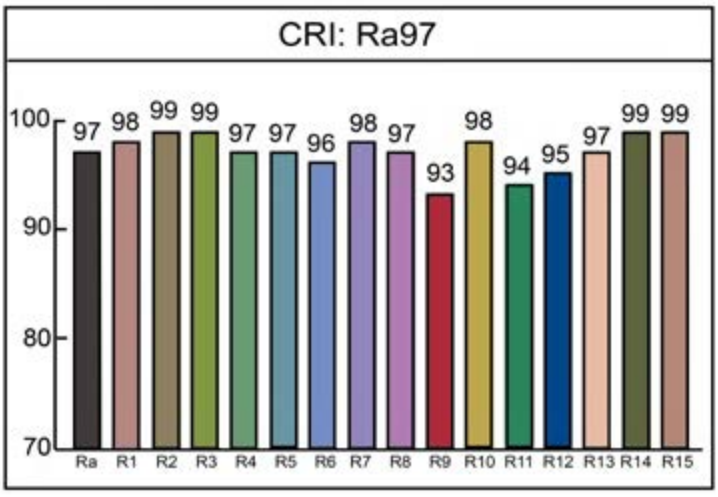
0.5 x 12-inch LED Module



Description:	
Size, Quantity of LEDs, Power, Brightness	~0.5 x 12 x 0.28-in, 21 LEDs, ~5-watts, 700 lm ~10-watts, 1540 lm
Voltage	24-vdc [Constant Voltage]
Dimming	Pulse Width LED dimmer
CRI: (Ra)	≥80, [SunLike>95 (97 Typical)]
Color (Kelvin):	3,000K, 4,000K, 5,000K +/- 300
LED Luminescent Maintenance L_{70}[1]	100,000+- hours to a 30% decrease in brightness
Construction:	Aluminum Printed circuit board
Weight (oz):	~ 1
Certification	NA
Connector Option: Order module without connectors allows soldering leads directly to the module.	AVX Corp., 9176 Series, Required tool-18-20 AWG: Part #: 069176701601000 Universal Handle: Part #: 067000773001000
Origin	Manufactured in South Korea

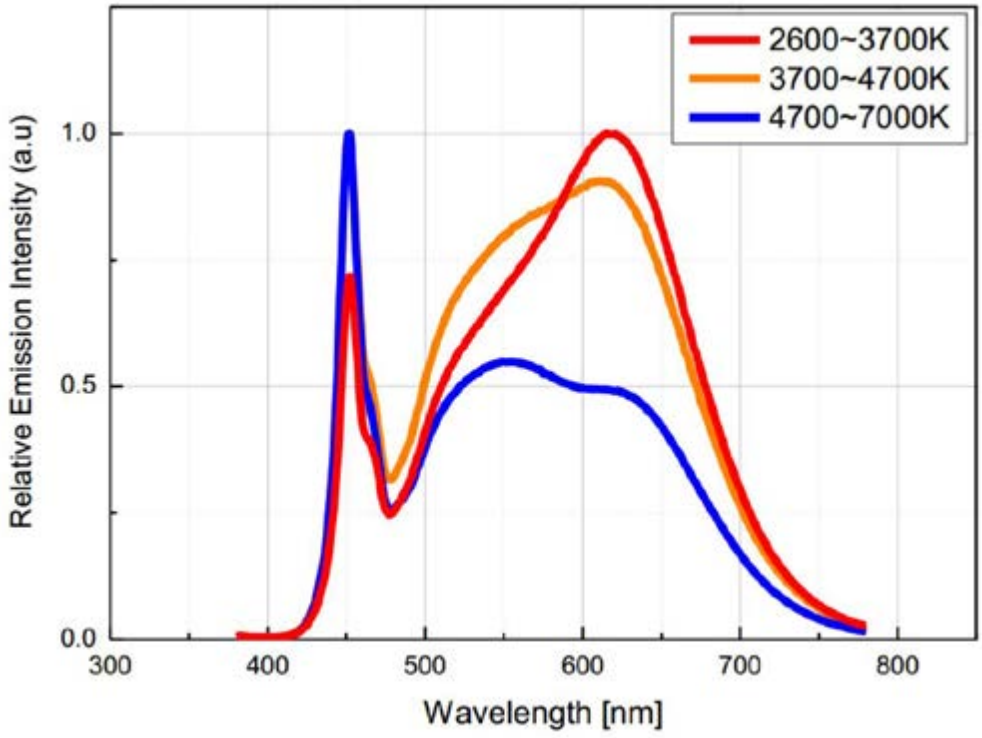
Typical Photometric Data (SunLike)*

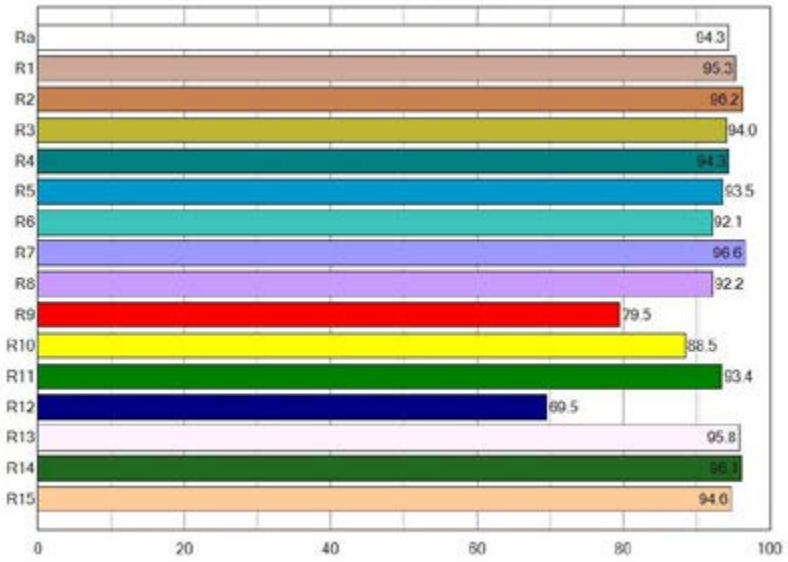




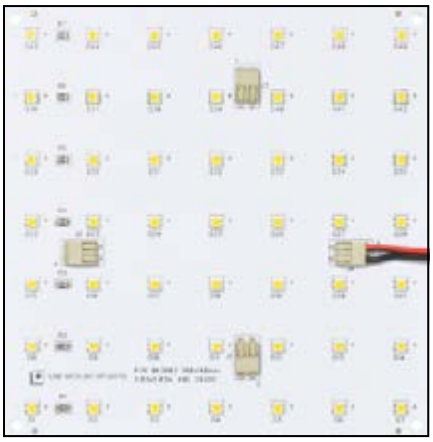
* Data supplied by manufacturer

Typical Photometric Data





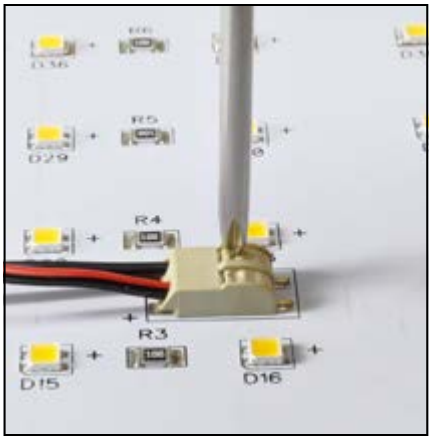
Electrical Connections



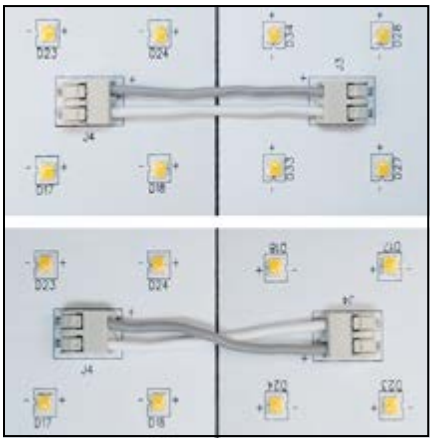
DC power can be supplied to the module at any of the Wago #2060 terminal blocks.

The positive [+] side of the connector is marked with a [+]

Always note polarity of each terminal block when making electrical connections.



To release tension on the wire, gently press down, as shown. Too much pressure will damage the terminal block.



Modules are easily connected to each other with 18 AWG wire. Solid copper wire is easier to insert into the terminal block than stranded. Remove about 5/16-inch of the insulation and insert, as shown.

The total load on any single terminal block should not exceed 6 amps, or 144-watts.

Important: Always note polarity of terminal block when making electrical connections.

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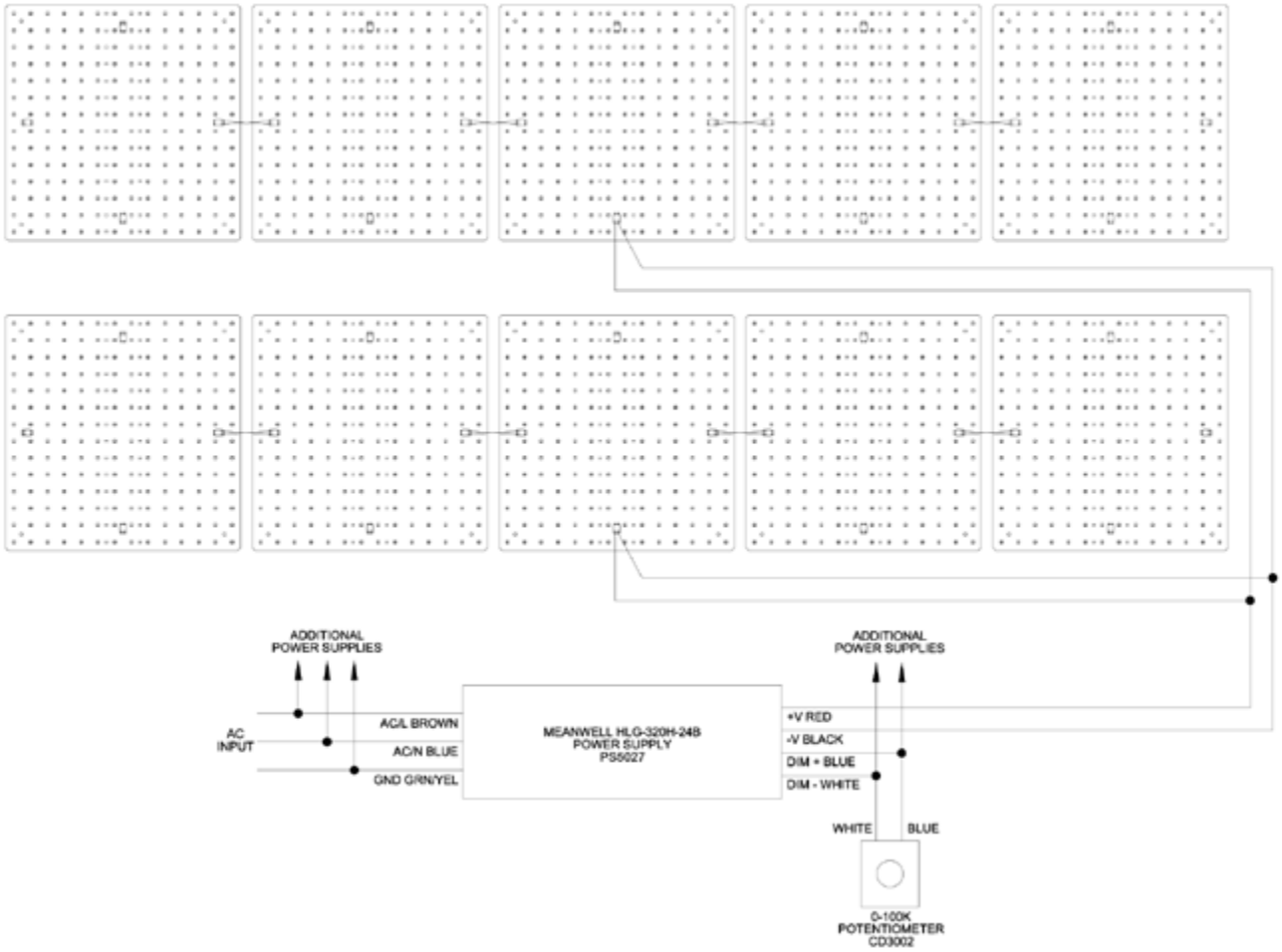
Electrical Wiring Example

The following is one example of the many ways our LED modules can be electrically connected to each other.

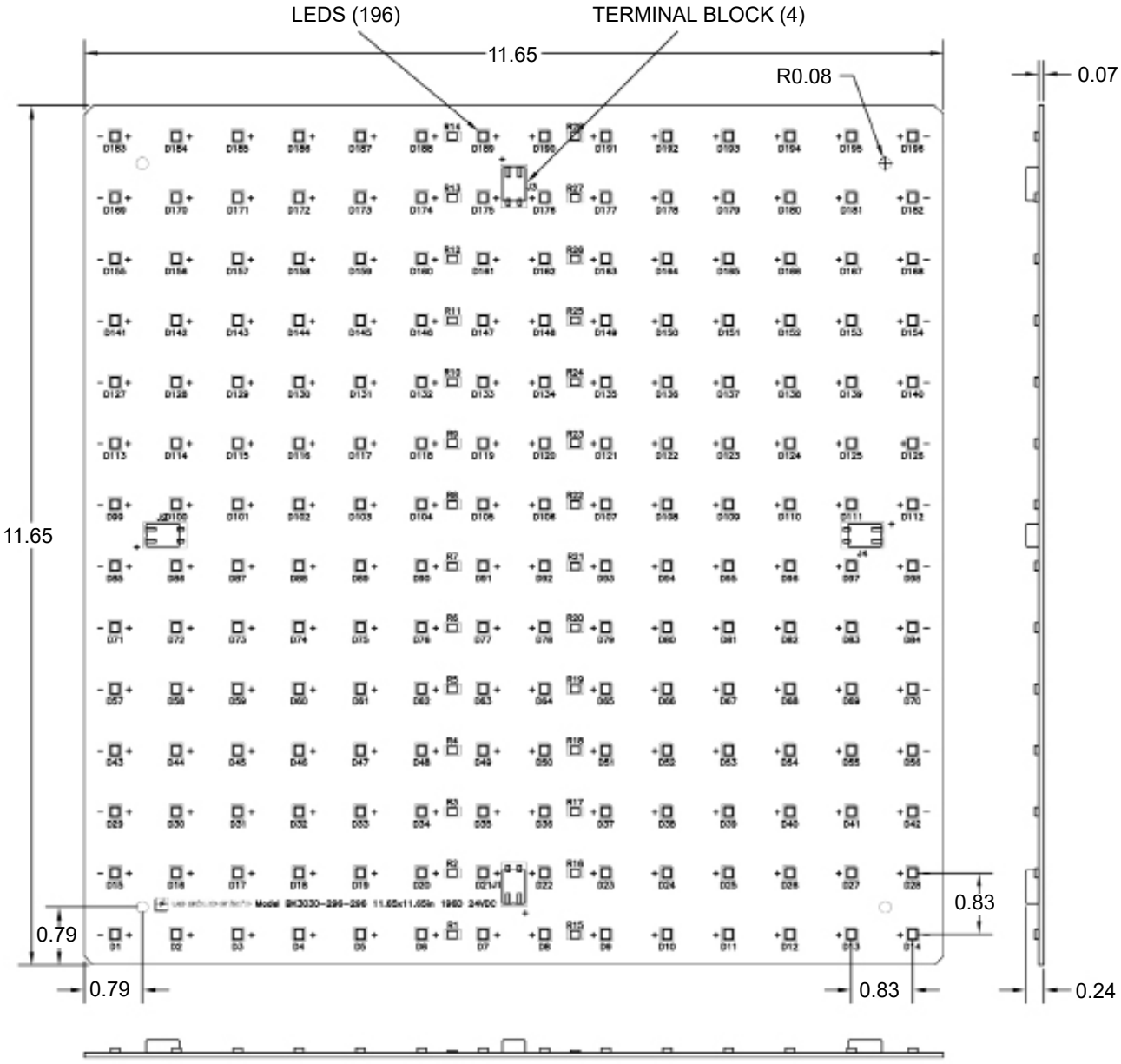
To calculate the required power supply size, determine the total power (watts) for all the panels to be connected to the power supply then add 20%.

For example- 10 modules x 25 watts = 250 watts + 20% = 300 watts



Module Detail

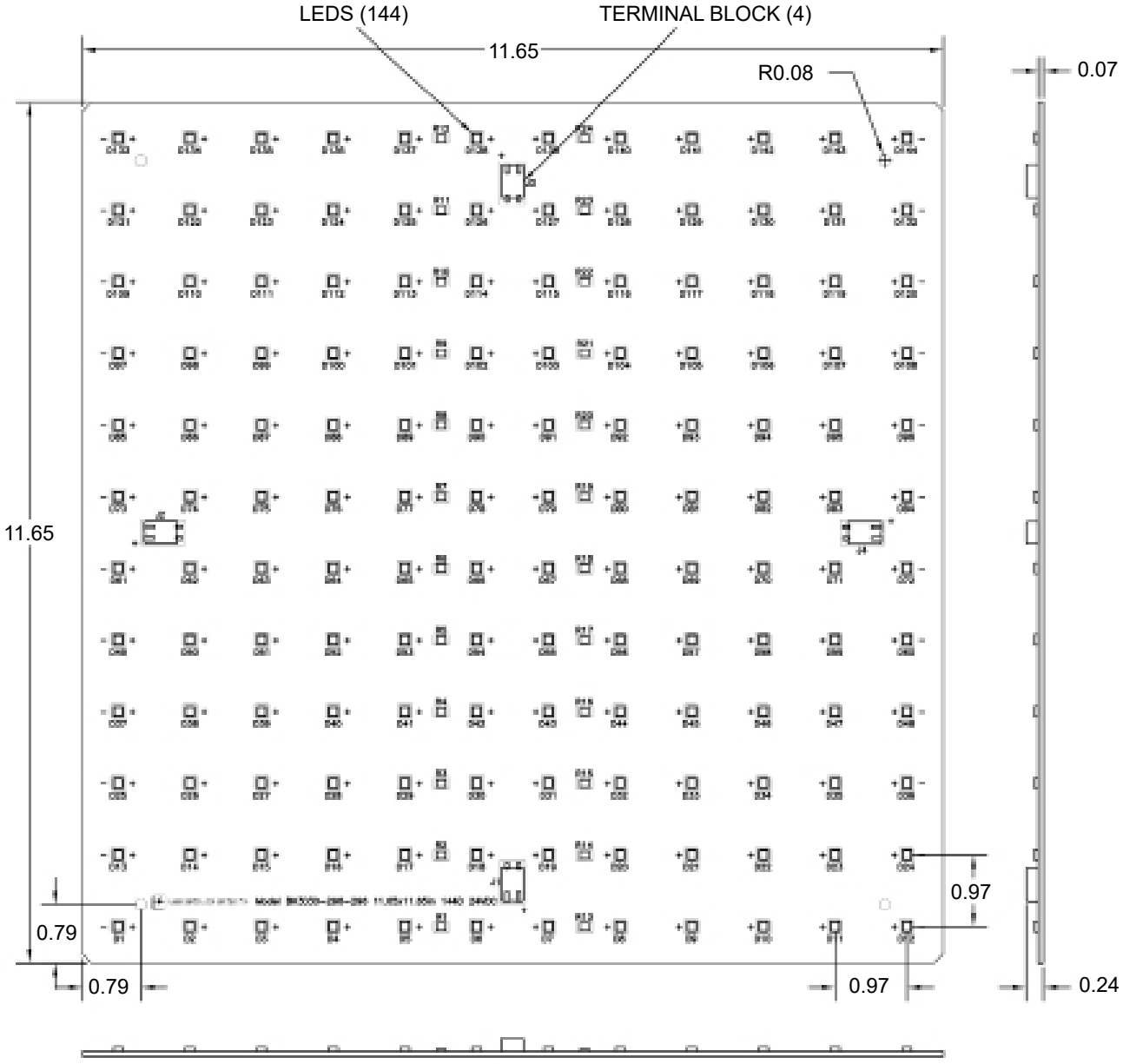
196 LEDs



ALL DIMENSIONS ARE IN INCHES

Module Detail

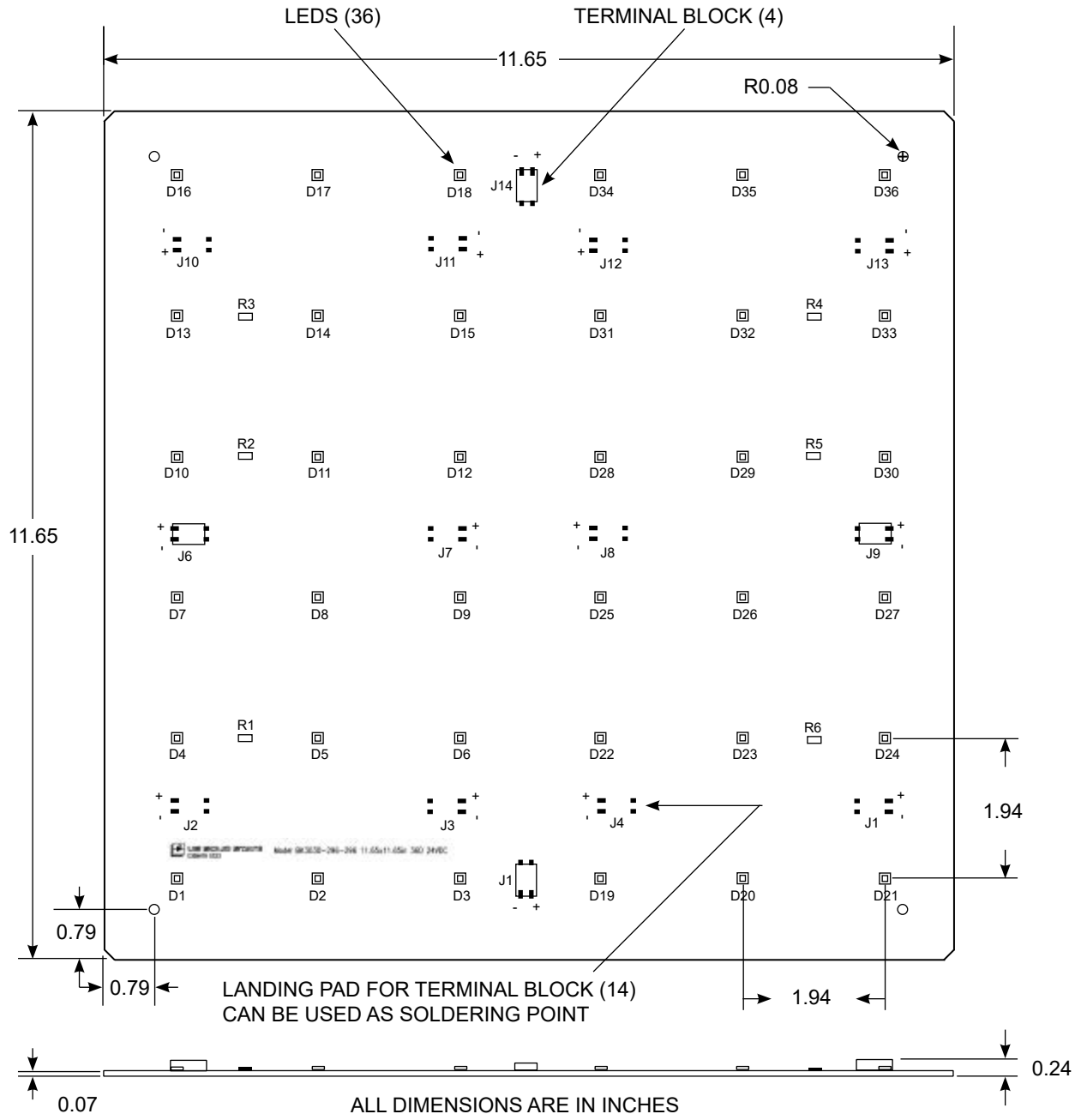
144 LEDs



ALL DIMENSIONS ARE IN INCHES

Module Detail

12 X 12 - 36 LEDs



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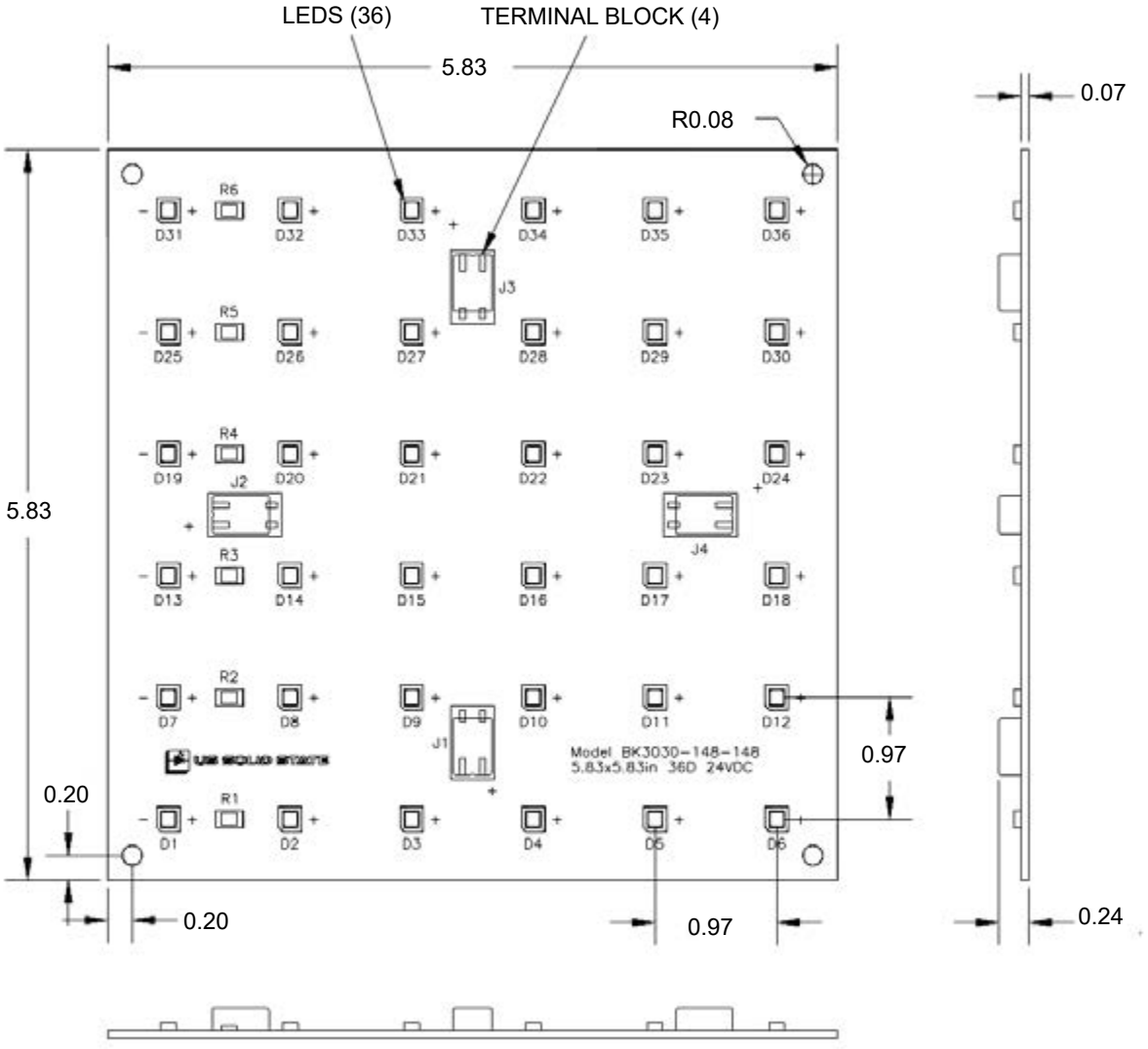
Module Detail

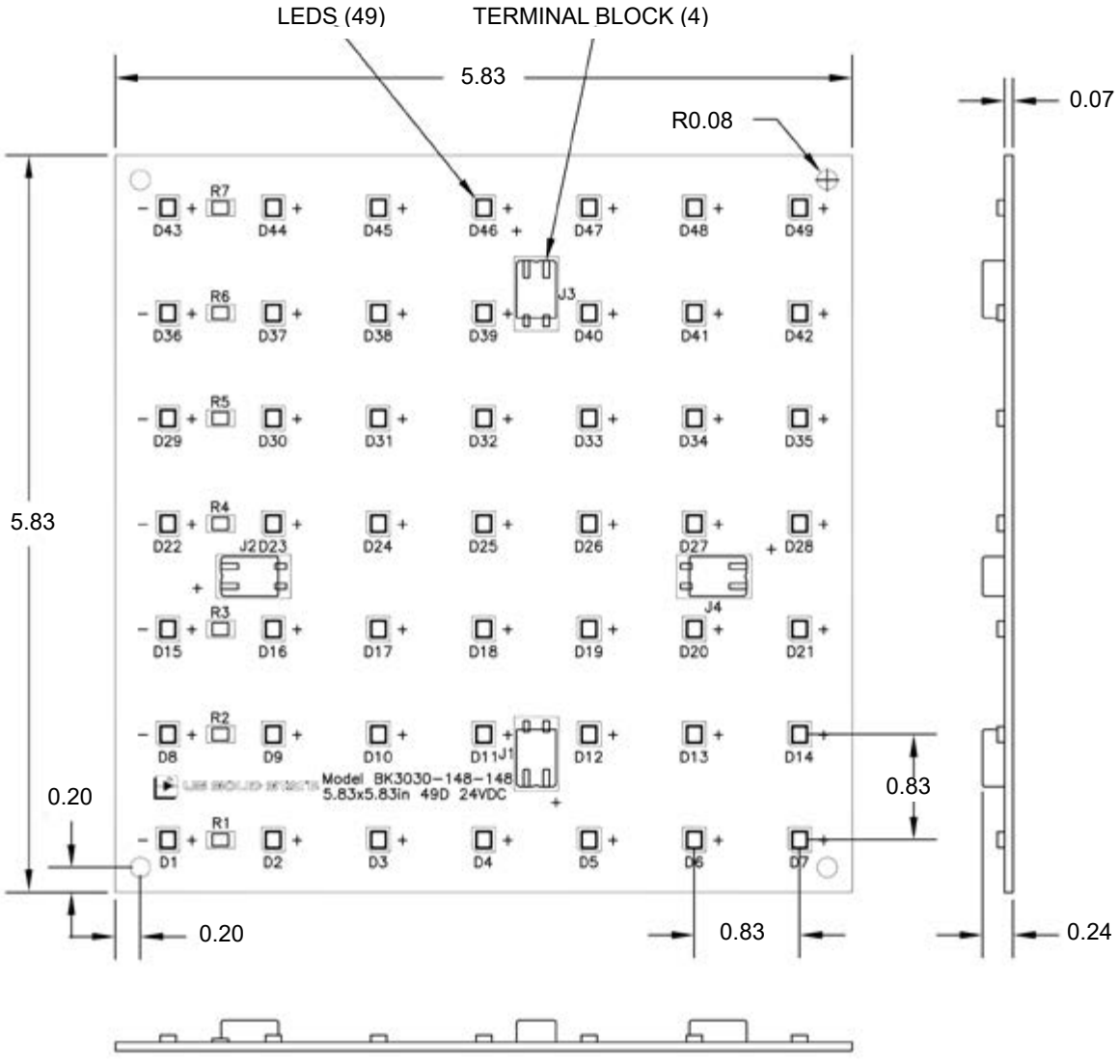
36 LEDs



ALL DIMENSIONS ARE IN INCHES

Module Detail

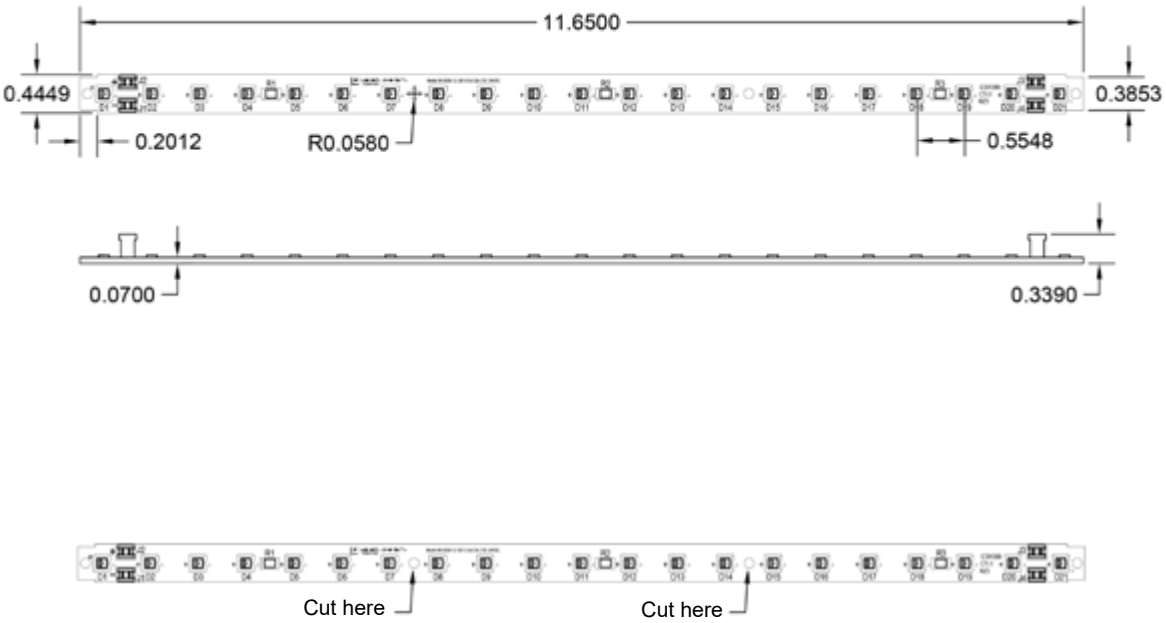
49 LEDs



ALL DIMENSIONS ARE IN INCHES

Module Detail

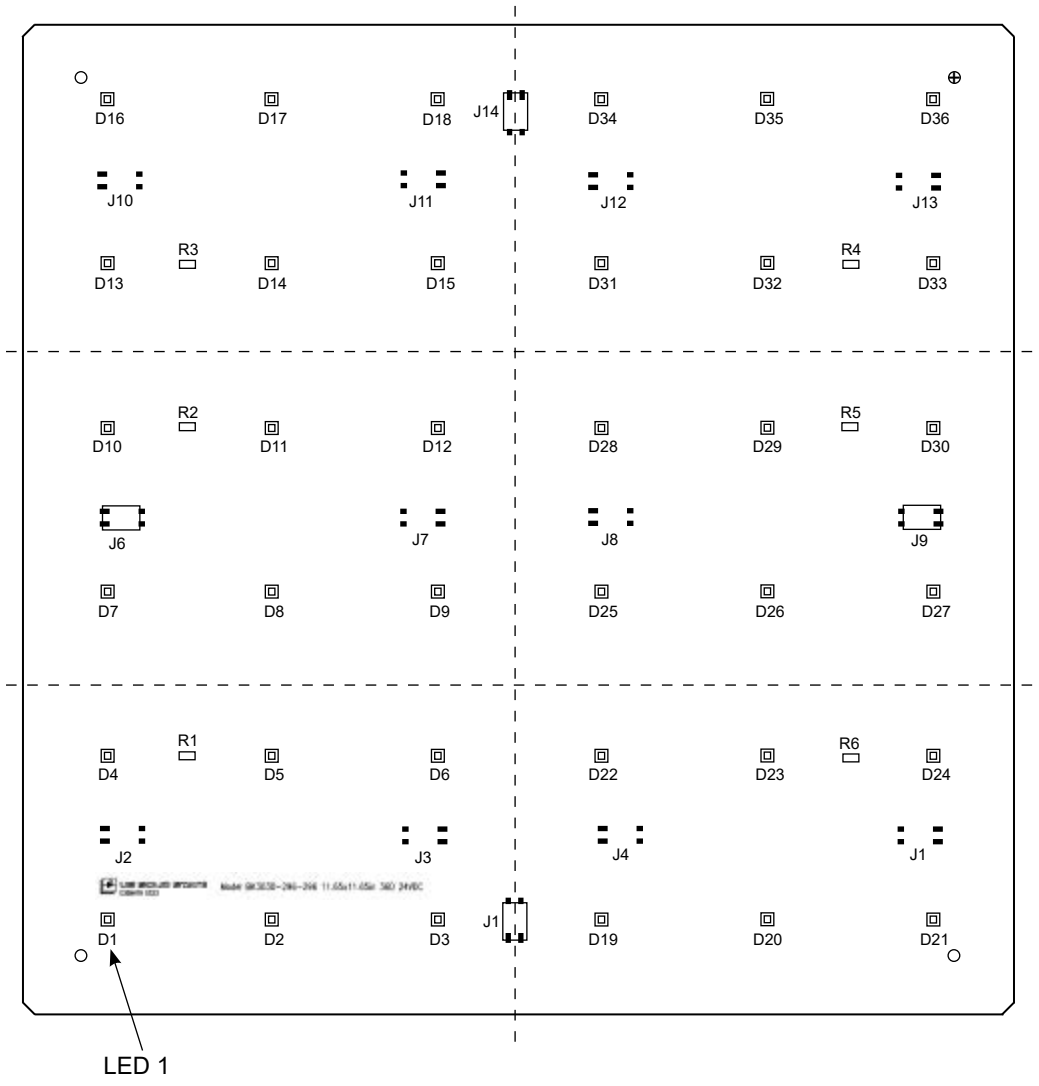
21 LEDs



Cutting Instructions

12x12 (36) ONLY

A) Position modules as shown
B) Cuttable on dashed lines
C) Smooth rough edges
D) Cover cut edge with insulating material



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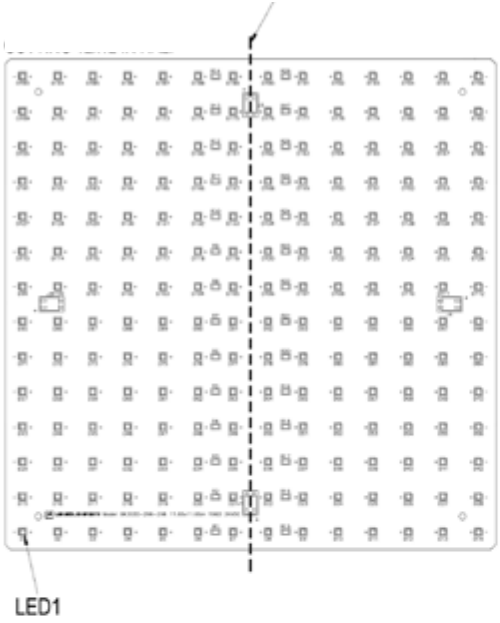
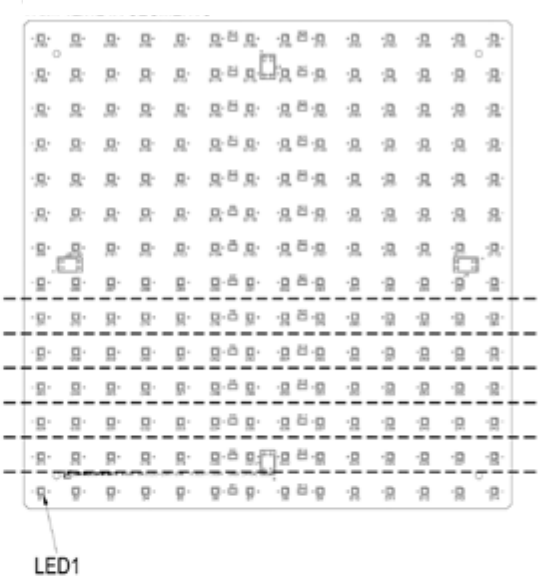
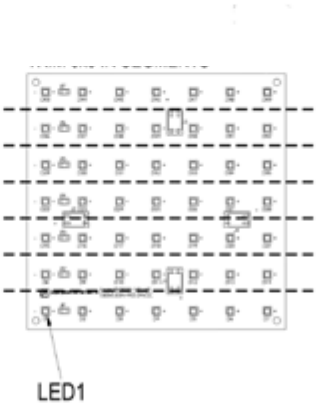
Cutting Instructions

A) Position modules as shown
B) Cuttable on dashed lines, in the drawing
C) Smooth rough edges
D) Cover cut edge with insulating material







Optional Module Load Protection

Silicone Bumpers

Optional half-inch Silicone bumpers can support heavy loads and offer protection to LED modules. Nine bumpers can support approximately 70-pounds per square foot.

Bumpers have an adhesive to hold them securely to the module.

Handling Precautions of LED Products

Do Not:
View an operating LED for extended periods of time without proper eye protection.

Apply pressure to top or sides of the LED. LEDs are fragile and can be damaged.

Operate an LED module at a voltage greater than recommended.

Operate an LED module at extreme temperatures, LED die temperature should not exceed 120C

Operate in an environment containing volatile organic compounds (VOCs). Some materials such as glue, conformal coating, O-rings, gaskets, potting compound and cardboard can offgas and degrade the performance of an LED.

Harmful chemicals (partial list)
- Chemicals that might outgas aromatic hydrocarbons (e.g., toluene, benzene, xylene)
- methyl acetate or ethyl acetate (i.e., nail polish remover)
- Cyanoacrylates (i.e., “Superglue”)
- glycol ethers (including Radio Shack® Precision Electronics Cleaner - dipropylene glycol monomethyl ether)
- Formaldehyde or butadiene (including ashland PLioBonD® adhesive)
- Dymax 984-LVUF conformal coating
- Loctite Sumo glue
- gorilla glue
- Clorox bleach
- Clorox Clean-Up Cleaner spray
- Loctite 384 adhesive
- Loctite 7387 activator
- Loctite 242 threadlocker

Use in a wet environment where the module will get splashed with water.

Clean with water, benzine or paint thinner.

Do:
For cleaning use ≥90% Isopropyl alcohol, gently wipe the module with a clean damp cloth.

Have adequate cooling so the LED chip temperature does not exceed 120C (248F)

Protect module from water and salt air, if used outdoors.